ECONOMICS IN ACTION FEB. 1953

With March 15 drawing near, high school students in many cities are attending special classes to learn how to help their dads make out income-tax returns...This may not be the only help dad can expect this year. Many Democratic and Republican Congressmen are eager to see individual taxes slashed 10 percent at the same time that the excess profits tax expires in July...But Treasury Secretary George Humphrey insists that we must "balance the budget before cutting taxes"...President Eisenhower himself can't look forward to any tax relief, since Congress turned down a proposal giving special tax deductions to the President and Vice-President....

The federal budget from July '53 to July '54 ought to run to about $78 billion, according to the recommendations of ex-President Truman...Already trimmed several billions below last fall's estimate. it's hard to see how this budget can be sliced very much more, even though it may knock the nation $10 billion further into the red...The new Administration maintains that there's a lot of "fat" in the Truman budget, but admits that the only major cuts can come from the foreign aid allotment. This will be hard to manage just now, since most of the foreign aid money has already been appropriated by Congress... Expect no miracles, warns Budget-Director Dodge....

Why we won't have another "crash" was the subject of another message Mr. Truman left for his successors. Though we are in a boom period, he said, we are on far more solid ground than we were in '29 ...Output per worker has soared 80 percent in the past generation, even though the average work week

has dropped from forty-eight to forty hours...Farm production is up 50 percent...Average income has gone from $1000 in 1929 to $1500 in 1952, measured on the same price-scale...Our ability to make machines is part of the reason for this success. Thanks to American enterprise, more than 2.6 million people are currently engaged in making machines that will, in turn, make other machines or machine-products....

Higher productivity per cow, however, is causing wrinkles in a lot of Washington foreheads this month...With butter glutting the market, the government has been forced to buy seven million pounds of it a week (cost: $650,000 daily) in order to keep butter prices at 90 percent of parity...How long this can go on--especially since the current price-support law expires March 31--is a nasty problem for politicians conscious both of the importance of the farm vote and the need to keep the budget free of "fat"....

Cigarette sales continue to burn up all previous records. About 390 billion cigarettes were smoked in '52, and in spite of those resolutions about cutting down, the 430 billion mark will probably be topped in '54 ...King-sized brands are coming up fast, with sales of the half-inch-longer type accounting for almost a fifth of total cigarette buying...Although we are smoking more, we are drinking less. The American consumer spent 1.8 percent of his disposable cash for liquor last year, compared to 2.2 percent in pre-war years...Other inebriatory statistics: a bushel of corn worth $2.99 can be distilled into five gallons of whiskey worth $81.00....

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challenge
MAGAZINE

Vol. I No. 5 February 1953

Economics In Action

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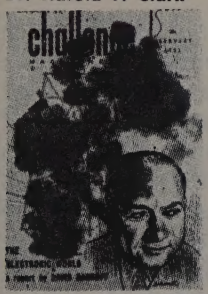

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a personal note

THE PHENOMENON OF MULTIPLE OCCURRENCE has always intrigued me. How are we to explain the series of disastrous air crashes that suddenly make the headlines within the space of two or three weeks, or the several sets of quadruplets that are delivered almost simultaneously in various parts of the world, or the rash of prison riots that occur in widely separated areas of the country. And then we hear nothing more of them, as though the full quota of air crashes, quadruplets and prison riots has been filled for some time to come.

I am certain that it would be difficult to explain this curious pattern in human affairs, but one cannot help wondering about the whys and wherefores of it — particularly when one becomes a direct participant in such a phenomenon.

For example, four weeks ago the distinguished author and Pulitzer Prize winner, Oliver La Farge, finished an article for us. His article deals in part with our government's policy of paternalism toward the various Indian tribes of this country — and the consequent effects on their economic life. Between the time that I saw Mr. La Farge's article and its publication in this current issue of CHALLENGE MAGAZINE, I have chanced upon three other interesting references to a situation in which a Great White Father has assumed economic responsibility for his charges. The details of these three cases differ, but in substance each provides a comment on paternalism particularly pertinent in these times.

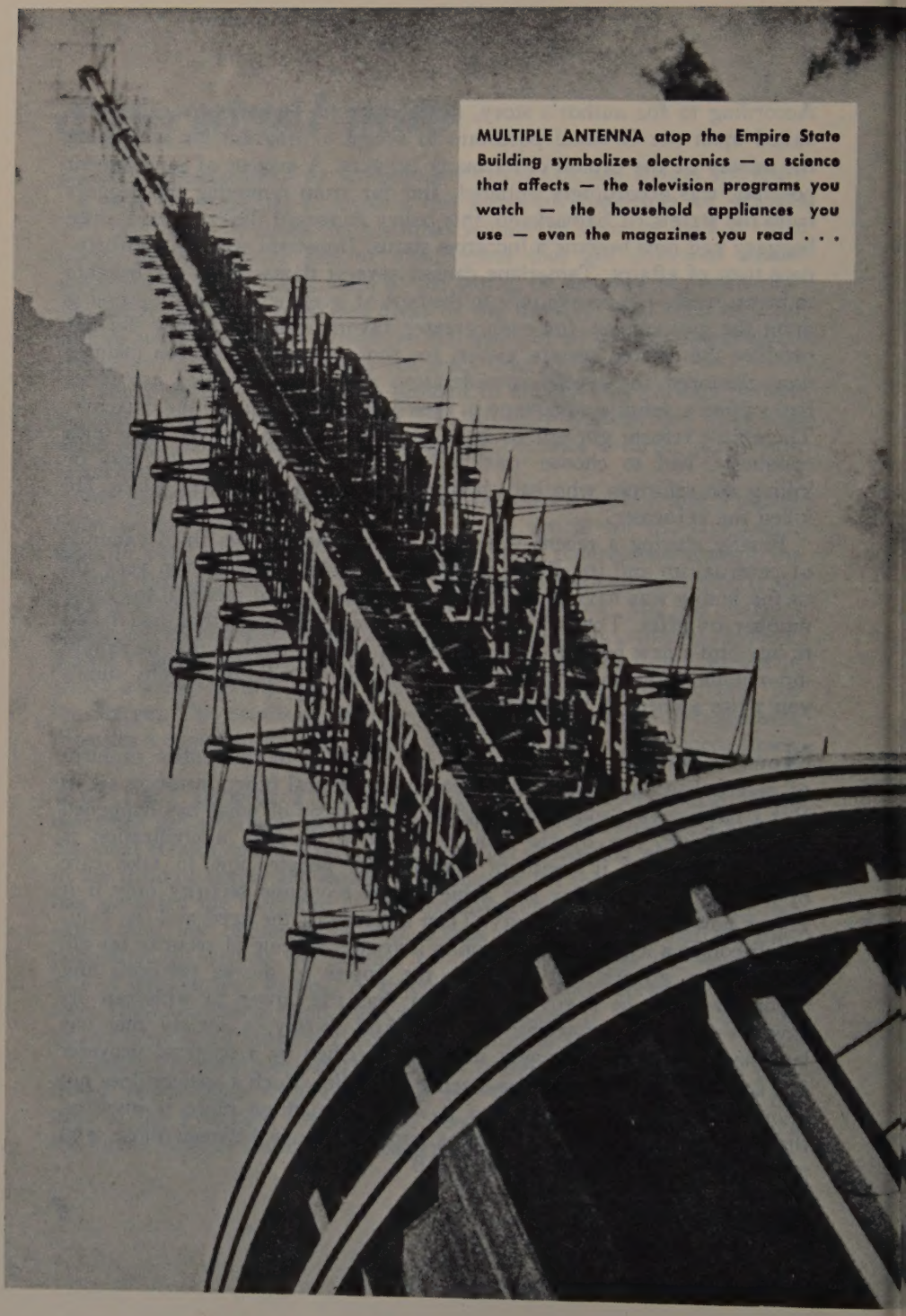
THE FIRST REFERENCE I FOUND was in a newspaper article which described the effects of government handouts to Eskimos by Canada's National Health and Welfare Department. It seems that government aid in the form of family allowances and pensions for the aged and the blind has increased the incidence of Eskimos owning as many as twenty-two clocks and six phonographs, but it has decreased the total Eskimo population as well as the number of those who pursue the rewarding arts of hunting and fishing. A chronicle of the socio-economic ills that have thus descended upon the Canadian Eskimo is much too long to record here, and I suspect it would be obvious to all, anyway.

Another reference to paternalism was found in a novel, recently published, which deals with Tamerlane, the Tartar conqueror who at the turn of the Fifteenth Century had become master of the world from the Great Wall of China to the eastern coast of the Mediterranean Sea.

According to the author's story, a reformer in Tamerlane's court prevailed upon the Oriental potentate to accept a program for alleviating the misery of the capital city's many beggars. A system of government pensions was accordingly initiated. But far from removing the beggars from the streets of Samarkand, this policy increased their numbers since beggary had now become a lucrative status. Impatient with this unfortunate turn of affairs, Tamerlane caused several thousand of the beggars to be maimed — as an example to the host of wretches who were pressing upon the government for even greater favors. But this policy did not produce the desired results, either, for those who had not been maimed now clamored for special consideration since their crippled associates had gained a definite advantage in their bid for the alms of the citizenry. The entire reform got out of hand, and Tamerlane, always busy with conquests, had to choose quickly between killing all the beggars or killing the reformer who had thought of the idea in the first place. He killed the reformer.

Finally, during a recent visit at a friend's home, this third example of paternalism and its effects caught my attention. The eleven year old of the family was having a birthday party, and he had received the usual number of gifts. The boy's only regret was that his father had failed to buy him a new bicycle. When his father tried to explain that he simply did not have the money, the boy had a simple solution. "Why didn't you write a check?" he demanded.

NOW, IT MAY BE that I have become sensitive to this entire problem of paternalism and that I shall run across several other instances of it. But I have drawn some conclusions on the basis of what has happened already. First, one of the quickest ways to destroy a civilization is to "take care of it" without showing its people how to take care of themselves. A society can achieve true economic security only if it knows how to *earn* its security. Then the care of the aged and the helpless becomes a legitimate function in a greater scheme of security for all. Secondly, a government that has the power to decree pensions and favors can also be a government that has the power to withdraw its favors — even its protection of life. And thirdly, a society that has become accustomed to having its needs satisfied by a paternal provider is a society that does not have a sense of reality. Such a society does not know that in order to get what it wants, something more is involved that the mere passage of worthless paper currency between those who purchase and those who supply.—HB



MULTIPLE ANTENNA atop the Empire State Building symbolizes electronics — a science that affects — the television programs you watch — the household appliances you use — even the magazines you read . . .

A leader in the field looks at

This Amazing Electron

by Brig. Gen. David Sarnoff

Chairman of the Board, Radio Corporation of America

THE ELECTRON is a negative particle of electricity so small that 30 billion billion billion weigh only one ounce. This tiniest of electrical particles has proved to be a mighty midget.

At the turn of the last century, about the same time that Marconi invented the wireless, the electron was discovered by an English physicist named Thomson. Around this discovery grew a whole new branch of science — electronics, dealing with the generation, control and application of electricity in every form. The practical application of this science has revolutionized the field of communications with a new and dynamic electronic miracle called television.

In a relatively short period of time, television has become a brilliant symbol of America's leadership in communications.

Let's go back to the days immediately after the end of World War II. There were fewer than 10,000 television sets in use, and only six licensed stations in the country, with programs on a meager few-hours-a-week schedule.

Then, suddenly, wartime restrictions were lifted.

At RCA we felt that the job of helping television grow into maturity was one for an entire industry—not for just one company. So we invited all our licensed competitors to a meeting at our Camden, New Jersey, plant. There we handed them the blueprints for our television receivers, complete with a bill of material. We told them they were free to use this information in any way they desired. Then we took the entire party through our television plant and let them see what we were doing.

Now, then, what resulted from this industry-wide get-together? Well, on January 1, 1947, television sets in use by the public numbered 16,476. By January 1, 1951, there were 10 million sets; and today there are 21 million!

Pioneering and scientific research are the insurance agents of industry, providing a perma-

BROADCASTING

TELEVISION

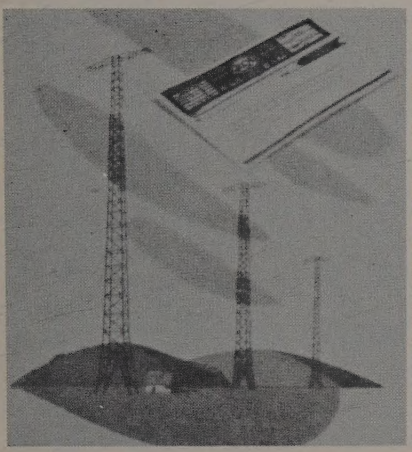
nent endowment of versatility and vitality. They give our country economic strength and increase national security. They lead to new products and services, cultivate prosperity and improve the general state of the nation.

Within the next five years, there will probably be 50 million television receiving sets, and hundreds of new television broadcasting stations with a potential viewing audience of 150 million persons. The lifting of the "freeze" on new television stations and the opening up of a portion of the spectrum for use in what is known as UHF (ultra high frequencies) now greatly extends the area of television broadcasting.

When Marconi sent the first wireless signals, in 1895, the total population of the United States was 70 million. We estimate that the potential TV audience for the national political convention telecasts last summer from Chicago exceeded that number. By 1956 — when another presidential campaign will take place — practically all the voters in the country will be within TV range.

Very soon, possibly within the next five years, we may also expect to see television established on an international basis. International television can become a powerful aid socially, educationally and politically. It can cultivate better understanding among nations and help to reduce the tensions born of misunderstanding — a very practical application of the old saying, "Seeing is believing."

Electronics, of course, continues to be the lifeblood of communica-



COMMUNICATIONS

FOREIGN TRADE

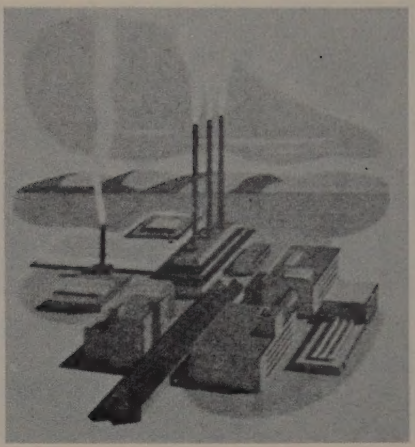
tions, but it is destined to have a great impact on other industries and, at the same time, to create new industries. Today, what was once "electrified" is on the way to being "electronized."

Home appliances, for example: Already there are electronic stoves and cookers; we may soon have electronic air conditioners and refrigerators.

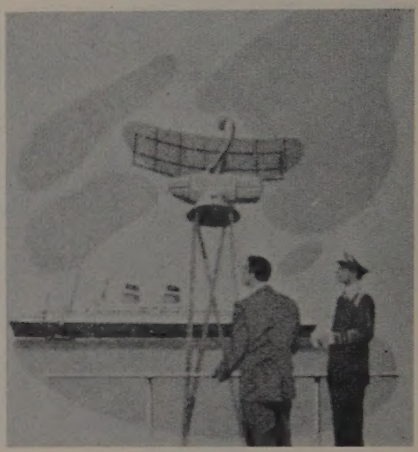
The printing industry, too, is being electronized. RCA engineers, in cooperation with the Interchemical Corporation, have developed automatic electronic equipment which reduces by at least one-half the time required to make color plates for printing; not only that, the fidelity of the plates is materially improved. This new process so speeds the manufacture of color plates that we may look forward to the time when daily newspapers will be able to print pictures of the day's events in color. It will be possible for weekly magazines greatly to increase their use of color pictures; some magazines eventually may be printed entirely in color.

We in the field of radio look upon electronics as a vital force in the future of business and industry. We have found that we can combine the automatic devices which have been developed for radio-television to form a complete electronic accounting system for even the largest business organization. Such a system would provide for the translation, storage, computation, processing and printing of pertinent information.

These modern robots — or "thinking machines" — promise



MANUFACTURING



MARINE RADIO

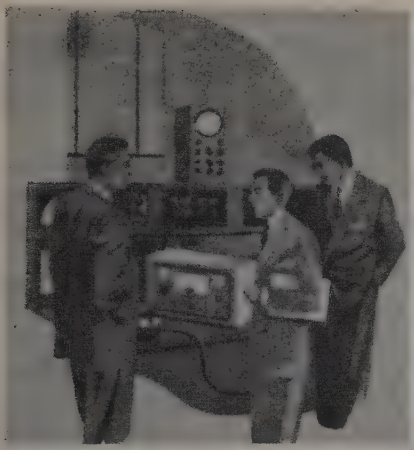
to revolutionize and simplify the clerical operations of insurance companies, banks, tax bureaus, stock exchanges, and business in general. In a department store, for example, a single electronic computer can do the combined accounting of receivables, payables, purchases and stock controls.

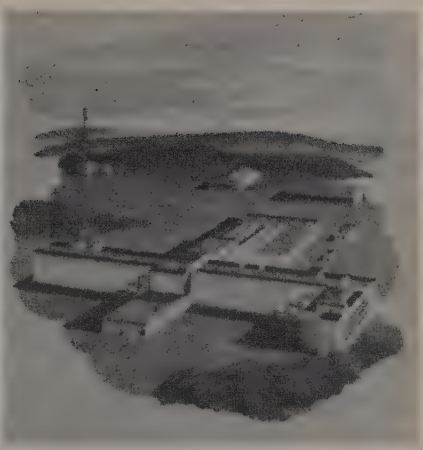
By no means are these possibilities and applications still in the dream stage. Two years ago, after many months of research and engineering, RCA scientists completed the "Typhoon," a computer for the United States Navy. This computer has made more than two thousand simulated test runs of proposed guided missiles at enormous savings to the government in time and materials. In fact, it is estimated to have saved the government more than $250 million on these tests alone.

Direct electronic aids to health through medicine have already been developed. The electron microscope has opened previously unseen worlds of the infinitesimal — we can now see viruses and bacteria. Human cells, blood corpuscles, tissues and nerve fibers, tremendously magnified up to 350,000 diameters, can now be photographed and studied.

Television itself is playing a part in the war against disease. Until recently scientists found it difficult to keep microbes alive for study at high magnification in light — or conventional — microscopes. Dyes, used to make microbes visible, killed some of them and others were destroyed by the intense light.

Our scientists have solved this





problem by making television a working partner of the microscope. The "eye" of the new system is a small television camera built around a sensitive vidicon tube. No intense light is needed, since this electron tube "sees" at low light levels. And by making the tube sensitive to the red or violet bands of the spectrum, dyes and stains are eliminated.

Several years ago RCA entered into a development program with the American Drug Manufacturers' Association for the electronic inspection of medical ampules containing vaccines and other liquids. This program was undertaken to improve inspection methods for insuring the highest degree of purity in drugs. Tests under way are expected to prove the practicability of electronic inspection of medical ampules in the same way that the beverage inspection machine, now in use throughout the country, has improved the inspection of bottled drinks. We have also developed and demonstrated to the dairy industry a portable inspection machine which makes certain that empty milk bottles are clear of contamination before they are filled.

"Surgical television"—a camera and microphone suspended over an operating table — gives large groups of doctors, nurses, internes and students a close-up view of an operation. A prominent surgeon who watched one of these demonstrations remarked, "This is a teaching medium that surpasses anything we have had in the past. It may well prove to be the medical lecture hall of the future."

Television has also become a remote eye for industry. Its hundreds of applications include the observation of dangerous processes as well as the transmission of information such as signatures, maps and files.

In industry, television has a variety of uses in mass training and education — it can add immeasurably to the safety and efficiency of workers.

Already installed on the President's personal plane, as well as on Navy and Air Force transports and on troop and hospital aircraft, is another form of television — a new radar set that draws a constant picture of everything in front of the airplane. A lightweight installation, weighing only 173 pounds, it can readily be installed on commercial aircraft. It has recently been put into mass production for the Air Force and Navy.

Science, through research, has a unique way of edging up to an existing industry or business to revolutionize routines and operations, to increase safety and productivity, and to provide a better return to labor for its effort and to capital for its investment.

Anxious people who watch the march of science frequently ask, "Will the scientific machines really make this a better world? Or will we destroy ourselves in the process of advancement?"

The answer to that question depends upon man himself, and not upon machines, for machines are not endowed by the Creator with minds and hearts and souls.

Science alone cannot guarantee security for civilization. Yet many of the problems facing man cannot be solved without science.

For centuries, man has had to toil by the sweat of his brow and he is tired by that toil. He has had to go into the mines and into the forests for fuel; he has had to go into the fields to cultivate the soil and to depend upon the elements for his harvest. Much of his work is unproductive, for even in converting energy into electric light, most of the energy is lost in useless heat. Man cannot survive without food, shelter and clothing; yet all people on this earth do not share equally in these basic needs of life. And this inequality breeds discontent, hostility and war.

Through atomic fission, it may become possible to facilitate the creation of raw materials so that all people will enjoy an abundance of natural wealth and thus remove one of the age-old irritants that lead to war.

I believe sincerely that if we labor as faithfully in the arts of cooperation, good will and peace as we do in the fields of physical science, we will find that the road ahead is one of progress, peace and prosperity. ■

The Old Gentleman

by Gilbert Highet

THE OLD GENTLEMAN was riding round his land. He had retired several years ago, after a busy career; but farming was what he liked, and he knew that the best way to keep farms prosperous was to supervise them in person. So, although he was approaching seventy, he rode round his property for four or five hours, several days each week. It was not easy for him, but it was not difficult either. He never thought whether a thing was easy or difficult. If it ought to be done, it would be done. Besides, he had always been strong. Although his hair was white and his eyes were dimming, he stood a good six feet and weighed 210 pounds. He rose at four every morning. Snow was in the air, frost and snow on the ground. This month he had been away from home on a toilsome but necessary trip; and in the hard weather he had been able to ride over his farms very seldom. Still, he liked to see them whenever he could. The land was quiet; yet a deal of work remained to be done.

There was much on the old gentleman's mind. His son had come home from college in some kind of disturbance and uneasiness, unwilling to go back again. Perhaps he should be sent elsewhere — to

"The Old Gentleman," by Gilbert Highet, Copyright 1952 by Oxford University Press, Inc. To appear in "People, Places, and Books," by Gilbert Highet, to be published in April 1953 by Oxford University Press, Inc.

Harvard, or William and Mary? Perhaps he should have a private tutor?... Meanwhile, in order to teach him habits of quiet and undistracted industry, "I can (the old gentleman wrote to a friend), and I believe I do, keep him in his room a certain portion of the twenty-four hours." But even so, nothing would substitute for the boy's own will power, which was apparently defective. The grandchildren, too, were sometimes sick, because they were spoiled. Not by their grandmother, but by their mother. The old gentleman's wife never spoiled anyone: indeed, she wrote to Fanny to warn her, saying emphatically, "I am sure there is nothing so pernisious as over charging the stomack of a child."

He also thought hard and long about the state of the nation. Although he had retired from politics, he was often consulted, and he kept closely in touch. One advantage of retirement was that it gave him time to think over general principles. Never an optimist, he could usually see important dangers some time before they became apparent to others. As he rode over the stiff clods under the pale sky, he was thinking over two constant threats to his country. One was the danger of disputes between the separate States and the central government. (Congress had just passed a law designed to combat sedition, and two of the States had immediately denounced it as unconstitutional. This could lead only to disaster.) The other problem was that respectable men were not entering public life. They seemed to prefer to pursue riches, to seek their private happiness, as though such a thing were possible if the nation itself declined. The old gentleman decided to write to Mr. Henry, whom he considered a sound man, and urge him to re-enter politics: he would surely be elected if he would consent to stand; and then, with his experience, he could do much to bridge the gap between the federal government and the States.

THE OLD GENTLEMAN stopped his horse. With that large, cool, comprehensive gaze which every visitor always remembered, he looked round the land. It was doing better. Five years ago his farms had been almost ruined by neglect and greed. During his long absence the foremen had cropped them too hard and omitted to cultivate and fertilize, looking for quick and easy profits. Still, even before retiring,

he had set about restoring the ground to health and vigor; first, by feeding the soil as much as possible, all year round; second, by "a judicious succession of crops;" and third, most important of all, by careful regularity and constant application. As he put it in a letter, "To establish good rules, and a regular system, is the life and the soul of every kind of business." Now the land was improving every year. It was always a mistake to expect rapid returns. To build up a nation and to make a farm out of the wilderness, both needed long, steady, thoughtful, determined application; both were the work of the will.

Long ago, when he was only a boy, he had copied out a set of rules to help in forming his manners and his character — in the same careful way as later he would lay out a new estate or survey a recently purchased tract of land. The last of the rules he still remembered. *Keep alive in your breast that little spark of celestial fire called Conscience.*

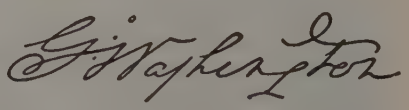
His mind turned back over his long and busy life. He never dreamed or brooded, but he liked to note things down, to plan them and record them. Now, on this cold December day, he could recall nearly every Christmas he had ever spent: sixty at least. Some were peaceful, some were passed in deadly danger, many in war, some in strange lonely places, some in great assemblies, some in happiness and some in anguish of soul, none in despair.

One of the worst was Christmas Day of twenty-one years before.

That was early in the war, a bad time. It snowed four inches on Christmas. His men were out in the open, with no proper quarters. Although he started them on building shelters, an aggressive move by the enemy made them stand to arms and interrupt all other work for nearly a week. And they had no decent uniforms, no warm coats, no strong shoes, no regular supplies, two days without meat, three days without bread, almost a quarter of his entire force unfit for duty. He was receiving no supplies from the government, and he was actually meeting opposition from the locals. They had sent up a protest against keeping the troops in service during the winter. Apparently they thought you could raise an army whenever you needed one — not understanding that this little force was the only permanent barrier between them and foreign domination. He had replied with crushing energy to that protest. In a letter to the President of Congress, he wrote:

I can assure those gentlemen that it is a much easier and less distressing thing to draw remonstrances in a comfortable room by a good fire side than to occupy a cold, bleak hill, and sleep under frost and snow without clothes or blankets. However, although they seem to have little feeling for the naked and distressed soldiers, I feel superabundantly for them, and from my soul I pity those miseries which it is neither in my power to relieve or prevent.

He ended with his well-known, strongly and gracefully written signature,



The Presidency:

World's Toughest Job

"THE PRESIDENT is Chief of State and . . . Commander in Chief of our armed forces. He is charged with the conduct of our foreign affairs. He is Chief Executive of the nation's largest civilian organization. He must select and nominate all top officials of the Executive Branch and all Federal judges . . . he has the obligation . . . to recommend, and to approve or veto legislation.

"This bundle of burdens is unique; there is nothing else like it on the face of the earth . . ."

No one on either side of the aisles of Congress jumped to his feet to dispute this statement by former President Truman in his State of the Union message last month. The presidency is probably the world's hardest job and it's getting harder.

What conditions does President Eisenhower face? What is his biggest responsibility? How strong is the nation he heads? How will he approach his responsibilities?

Dominating every concern of the President — like weather in the mind of a wheat farmer — is the threat of total atomic war. This threat has loomed so long without signs of abating that it has become a normal condition. As a nation, emergency living is now everyday and every-year living for us. This will continue indefinitely. We go on striving to live better, of course, but we are struggling to *survive* first.

Unleashed in a total war, modern weapons could destroy our tools and resources for civilized living. Because of this, the overriding task of President Eisenhower's Administration is to attain peace or maintain security.

On the international scale, the Eisenhower Administration must exert and apply our economic strength in at least two ways.

First it must do what it can to see that hunger and disease in the

underdeveloped areas of Asia and Africa are relieved. The people of these areas have known no industrial revolution. Today they see their poverty in galling contrast with conditions in the economically advanced nations. Discontent is brewing disillusionment among the educated few. This could lead to mass acceptance, within some of these areas, of a "cure-all."

If the "cure-all" happens to be communism, continuance of the basic dissatisfactions might pro-

voke an outbreak that would touch off the world war we dread. Or, over a longer period, the underdeveloped areas which fall under Marxist regime might provide new sources of manpower and resources for the Communist bloc. Such a shift of power probably would bring total war closer.

The Eisenhower Administration, therefore, must help provide the people of the underdeveloped areas with the skills they must have in order to solve their economic miseries.

A second way in which the Eisenhower Administration must apply our economic strength in the world is one that has been indicated by none other than Josef Stalin. Last October, he observed that the major economic result of World War II had been "the disintegration of a united all-embracing world market." It happens that in this instance he spoke the truth.

Since the war, the lack of a true world market has hurt some of the countries on which we depend most. And it is up to us to help put a world market back in operation.

The Eisenhower Administration, with the help of Congress, has the job of cooperating with the economically advanced nations in restoring a balanced flow of trade. And it must decide how much of this and all of its international activities are to be carried out through the UN, how much through allies, and how much independently.

Today, the United States swings a mighty arm in the world's workshop. It generates about 45 percent of the world's electric power. It produces about a third of all goods and services in the world. It accounts for more than half of the world's industrial output.

"The sheer economic bulk of the American Republic," states economist George Soule, "renders it the chief influence in stability or instability of the world's economy."

The main test of the Eisenhower Administration will be in how well it makes use of this influence in the promotion of peace.

How WELL prepared internally, to pull its weight internationally, is our nation at this first stage of the new Administration?

Productivity—the rate at which we make things — continues to mount steadily since its spurt following the outbreak of the Korean war. The value of all the goods and services we produce climbed throughout 1952. According to the recent U. S. Department of Commerce study of post-defense markets, it will go higher.

On the basis of several major assumptions—available labor force and productivity, the level of defense expenditures, the continuation of present tax rates and not more than minor business fluctuations — the report suggests a potential gross national product in 1955 of $365 billion based on 1951 prices. This would be an increase of 8 percent over the past year.

Our prosperity remains high, according to figures on spending by consumers, government and business. At last report, consumer purchasing was rising steadily, reflecting a peak annual rate of personal income at a little more than $235 billion, after taxes. And it may climb to $240 billion by 1955. This year may see an increase of 3.5 percent in retail sales.

On the question of defense spending, outlays by the federal government continue heavy enough to be considered the greatest single spur to our economy. The federal government pays for one-fifth to one-fourth of all the nation's goods — with the defense program consuming 75 percent of this share.

In view of the decline of the defense build-up expected to take effect late this year — in the event we don't have another Korea — business spending on newer and bigger facilities particularly draws our attention.

These spending plans indicate long-range expectations of nonwartime growth by the chief managerial decision-makers of our national economy.

The Department of Commerce says capital investment plans of American industry for the next

three years are much higher than anticipated. For this year, investment plans stand at $26.3 billion, only slightly less than 1952's defense-prodded $26.9 billion.

Employment figures also reflect a ruddy economic complexion. The last counted civilian labor force of more than 62 million employed

— and less than 1.5 million unemployed — marks a clear gain over a year ago.

By at least two main criteria the present condition and the outlook of our economy is less encouraging. For the last three years, federal expenditures have considerably outrun receipts.

The national debt stands today at about $265 billion, only about $14 billion less than at the end of World War II. The projected budget for the 1954 fiscal year may force us about $10 billion deeper into the red.

Inflation is the second sore point in our economy. Incomes, however, have risen sufficiently for most of us to have kept pace with the cost of living. And the supply of civilian goods and services has not slackened throughout all the hammer-and-tongs period of rearmament since July, 1950, suggesting that our economy may have muscles it hasn't flexed yet.

Gauged today by output, spending, employment and by its ability to meet both defense and consumer needs, our nation appears ready for any economic test.

In tackling the problems of the next four years, what sort of help does President Eisenhower have? During his campaign, he stated he would call in "the best business brains of America" to help him run the executive branch of the federal government.

It is well known that the present proportion of top level cabinet and agency officials with business and financial backgrounds exceeds any in our history. They come from a variety of industries — coal, textiles, aircraft, automobiles and banking—and their incomes run high into six figures.

This concentration of a particular breed of Administration chiefs constitutes in itself a salient economic fact today. We see installed as top policy-makers men who represent the managing, decision-making element of our economy;

these men are products of private industry and bring many of its attitudes and methods into the federal government.

To some, the appointment of so many businessmen to high posts in the Administration offers a public test of the ability of such men to improve the kind of government which many of them have criticized passionately during the past twenty years. But this new alignment of brainpower presents more than a test of judgment and administrative ability. It is also a test of adaptability.

As the President's Advisory Committee on Management recently pointed out, private corporations are able to develop policies and procedures over a period of time and experience, but the federal government must fix new goals and move toward them in response to quick shifts in events.

AMONG his foremost international moves, once President Eisenhower and his aides have settled into a smooth routine, will likely be an all-out effort to promote the formation of a European economic federation. Such a federation would help toward restoration of a world market by lowering the tariff barriers which still impede commerce among the nations of Western Europe. It would embrace the functions of the Schuman Plan and the Benelux agreement, both already in limited operation. Linked in a successful economic federation, Western European countries would depend less on America for aid.

On the world-wide scale generally, it looks as if the Eisenhower Administration will continue to extend the strength and influence of our nation.

Domestically, we may expect the President to encourage the states to take on many of the responsibilities that in recent years had been shouldered by the federal government. He has taken the position, for instance, that the states should seize the initiative in developing the natural resources of our river basins.

It is also likely that President Eisenhower will attempt to hold the line on participation by the federal government in social programs such as education and health insurance. His Administration seems bent on halting or reversing many of the trends toward internal expansion of the federal government's powers which were set in motion by previous administrations since 1932. ■

CHERNE

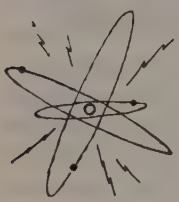
BUSH

LEE

VIRKUS

Nine leading citizens speak up on

WHICH PROBLEM



"Adequate weapons at reasonable cost."

Dr. Vannevar Bush — an adviser to the Department of Defense; Director of the Office of Scientific Research and Development, 1941-1946; President of the Carnegie Institution of Washington; an electrical engineer — says:

We have been producing both guns and butter in this country, and doing so with reasonable success. But there has been gradual inflation and our costs have risen seriously.

We are not yet at the end of the necessity of building weapons to defend ourselves, and of aiding our allies to do likewise. Military spending may level off; it may even be possible to reduce it within the next year or two. But this must not be done in such manner as to leave us without adequate defense, and the heart of the problem is cost.

One of the most challenging economic problems facing the new Administration is that of producing adequate weapons at reasonable cost. This means elimination of waste and inefficiency, but it also means bringing our financial system into order.

Later, if we avoid all-out war, there will be the problem of shifting production smoothly from military to civilian products, without hardship to any group, and this will by no means be easy to do.

HUMPHREY MITCHELL POTOFSKY INGALLS MONTAGU

FIRST?

Which economic problem needs first attention by the new Administration? A cross-section of leaders in government, industry, education and science state their views on this pressing question of the day.

"Assure prosperity and stability beyond defense peak."

Senator Hubert H. Humphrey, Jr. — Democrat from Minnesota; Member of the Committee on Foreign Relations; former federal administrator and professor of politics — says:

Many important economic problems will require early attention by the new Administration. Is the continuation of direct price, wage and raw materials controls necessary to prevent further inflation? How can the federal budget be brought into balance? Can foreign aid be safely reduced? Can taxes be safely and equitably reduced? How can assistance to friendly nations be effected through "trade, not aid"? How can labor-management relations be placed on a healthier basis?

Basically the most important question is: How can the continuation of a stable yet expanding full employment, full production economy be assured after defense expenditures, and perhaps business investment, pass their peaks? Even though some of the other problems require earlier attention, they cannot properly be solved in a vacuum. They must all be solved in terms of the contribution they will make toward the solution of the basic and most important question of all. I therefore consider the "first" economic problem to be the adoption of policies which will assure continued prosperity and stability in the United States.

Continued ⟶

"Restore confidence . . . lift controls, excess profits tax."

Don G. Mitchell — President of the Sylvania Electric Products Co.; trustee of the Committee for Economic Development; a director of the American Management Association — says:

Americans need to have a restoration of confidence in the integrity of their government—fair administration of tax laws in the collection agency, fewer government employees, a general reduction in waste, return of business enterprises to tax-paying ownership and greater encouragement to other nations to earn dollars instead of receiving them as gifts out of our tax revenues.

American business needs to have its freedom restored in terms of wages and prices. Price control is essentially a profits control measure and penalizes those companies that in the past have tried to give the customer the most value for his money.

American defense requires an expanding efficient industrial plant, much of the money for which should come from reinvested earnings. The excess profits tax leaves little for reinvestment. Increased borrowing and dilution of equity interest are what is left. These are inflationary. Therefore the excess profits tax should not be extended.

"Take a fresh look at trade-and-aid policies."

Mrs. John G. Lee — President of the League of Women Voters of the United States; a wife and mother of four children — says:

The economic relationship of the United States with the rest of the world is one of the problems which needs first attention by the new Administration. The problem is a broad one involving such questions as what kind and how much aid should we give to underdeveloped areas? Can lowered U. S. tariffs take the place of economic assistance to our allies in Western Europe? What policies will insure the free flow of raw materials to the industrial machines of the United States?

I believe that the economic well-being of this country is to a very large degree dependent on the economic well-being of the rest of the world. Therefore, a fresh look at our "trade-and-aid" policies is of first importance.

"High employment and purchasing power."

Jacob S. Potofsky — President of the Amalgamated Clothing Workers of America; a Vice President of the Congress of Industrial Organizations (CIO) — says:

The major economic problem facing the new Administration is not essentially different from the basic economic problem we have always faced—the maintenance of a high level of employment and of purchasing power coupled with the expansion of our social welfare programs and the achievement of decent living standards for all Americans. These conditions are indispensable if our economy is to operate in the coming period with stability and prosperity.

"Provide strength to meet danger in 1965 as in 1955."

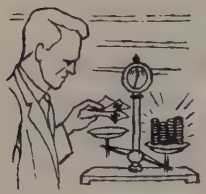
Leo M. Cherne — Executive Director of the Research Institute of America; adviser on taxation and fiscal policy to Gen. Douglas MacArthur, 1946; author of "M-Day and What It Means to You" and "The Rest of Your Life" — says:

It is virtually impossible to single out one economic problem which must be met with foresight and courage by President Eisenhower's Administration. Our existing and potential difficulties are so interrelated that planning and anticipation face a complex of urgent undertakings.

High among these is the necessity to determine that amount and rate of military readiness and arms manufacture which can assure us of strength as adequate to meet danger in 1965 as in 1955. This preparation for security should be so pursued as to prevent further inflation and yet avoid the risk of any significant recession.

An intricate balance must be found between security and stability, between short-term readiness and continued technological improvement, between assisting our allies and maintaining our internal strength, between countering subversion and preserving the independence and flexibility of our judgments and viewpoints.

Continued ⟶



"Answer is to return to the gold standard."

Fred A. Virkus — Chairman, Conference of Small Business Organizations; President of Virkus Co., Publishers — says:

Aside from the problem of war or peace, the first domestic economic problem confronting the new Administration should be to set our fiscal house in order, since this involves the basic cause of inflation of prices and wages which, in turn, are the reasons given for restrictions and the regimentation of our entire economic system.

With the depreciation of our dollar in 1933, deficit spending and unbalanced budgets were inevitable and controls followed as a natural sequence.

Six thousand years of recorded history have demonstrated the fallacy of an economy based on printing press currency without a standard of value for convertibility from paper to gold, which has been the accepted standard of value throughout history.

The answer to our fiscal problem is to return to the gold standard. Perhaps not overnight, but after an exhaustive study of our national and the international monetary situation, and recommendations to the Congress. For this purpose, we propose the establishment by the Congress of a (2nd) National Monetary Commission, to recommend the ways and means.

"Reduce the burden of government on free enterprise."

Roscoe C. Ingalls — President, Association of Stock Exchange Firms; Partner, Ingalls and Snyder, Stockbrokers —says:

The first economic problem to face our new Administration will be that of reducing the heavy burden of government on our competitive free enterprise system.

This burden is represented by the *amount* of taxation, by the *form* of taxes and by multilayered and unnecessary direct economic intervention and regulation. By assuring maximum economy in the operation of government, by introducing the principle of "trade, not aid"

in our relations with our neighbors and friends across the seas, and by changing the form of taxes so that they will be less destructive of incentives than present excess profits and capital gains taxes, we can go far toward freeing the energies of our capitalist system for the purpose of further raising the standard of living of our people. By reducing the amount of direct taxes on individuals we can encourage the formation, in the hands of savers, of the capital which is necessary for economic expansion under any social system.

The incentives and means to productive accomplishment created by such a many-faceted program would tend to check inflation, restrict downward swings in the business cycle, quicken and reawaken the spiritual and moral fiber of our people, and instill confidence in the soundness and integrity of our government and business institutions.

"Help weak nations tactfully, constructively."

Dr. M. F. Ashley Montagu — Chairman, Anthropology Department, Rutgers University; author, "On Being Human," "Man's Most Dangerous Myth," "The Fallacy of Race" — says:

It seems to me that the economic problem which needs first attention by the new Administration is the *manner* of administering economic aid to those countries which stand so much in need of it. I have underscored the manner because while we are doing much immediate good with our aid in a material way, we are not succeeding anywhere nearly as well as we might in the matter of human relations.

The fault is by no means altogether ours, but however this may be, the fact is that we do have the potential wisdom and the active desire to establish good relations with our neighbors of the rest of the world. I would suggest that the new Administration call in more social scientists to study the problems of human relations on the spot, wherever economic aid is being given.

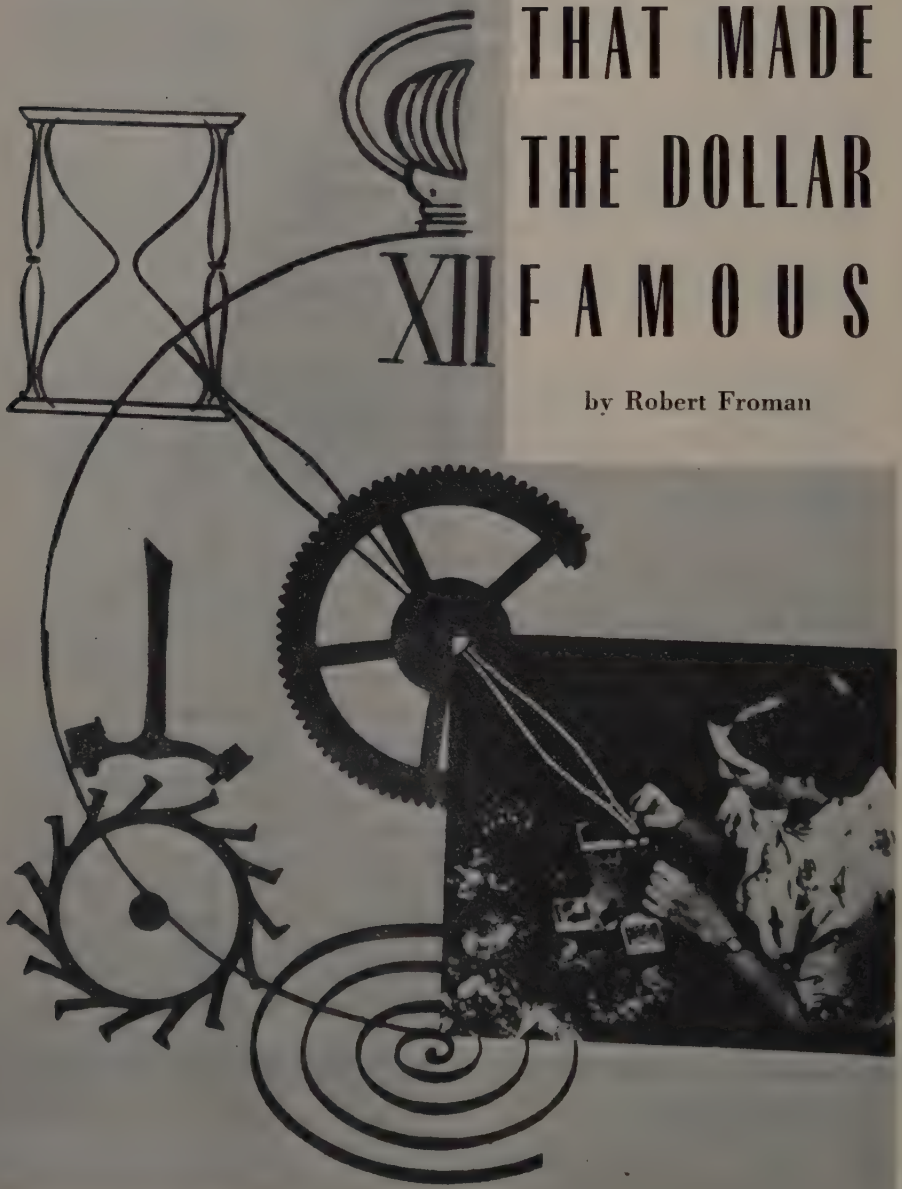
America's problem is how to use her strength tactfully and constructively in relation to the rest of the world's weakness.

PHOTO CREDITS: Mr. Cherne, *A. F. Sozio, N. Y.;* Mrs. Lee, *Bradford Bachrach;* Sen. Humphrey, *United Press Photo;* Mr. Potofsky, *Chase Washington;* Mr. Ingalls, *Underhill Studio, N. Y.;* Dr. Montagu, *Editta Sherman, N. Y.*

It took true Yankee ingenuity to make this biggest of bargains tick.

THE WATCH THAT MADE THE DOLLAR FAMOUS

by Robert Froman



IN LONELY STATE on the vast mahogany desk of the purchasing manager of a large chain of five-and-ten stores reposes a small object encased in steel and glass. Before the desk flows a stream of fast-talking salesmen. Nearly all of them sooner or later refer to their offerings as great bargains.

At the word "bargain" the man behind the desk raises a hand to stop the flow of rhetoric and points to the steel and glass object.

"When you use that word," he says, "stop and think. Can what you're selling compare with this **as a bargain?"**

It seldom can. For the item on the desk is one of history's most famous bargains — the dollar watch. Though it now sells for $1.69 to $2.25, it is an even greater bargain today than it was fifty years ago when it first came to be known as "the watch that made the dollar famous." For in that time, wages have increased more than eightfold and material costs have more than doubled.

The more closely you examine such a watch the more fabulous a buy it seems. Containing at least ninety separate parts, most of them machined to a tolerance of a thousandth of an inch or less, the watch is a good timekeeper and is a striking example of what American mass production methods can do.

Ever since the invention of the sundial at least six thousand years ago, inventors have wrestled with the problem of keeping time and even made some very decorative but inaccurate clocks. It was not until the Sixteenth Century that Galileo made possible the modern mechanical clock through his study of the habits and personality of the pendulum. A weight swinging on the end of a wire, the great scientist discovered, always swings back and forth at the same rate, even if the propelling force becomes weaker. It will swing in a smaller and smaller arc, but the rate remains the same.

Galileo's discovery made possible a clock with more regular habits. By hitching the pendulum to a set of intermeshing gears, the clockmakers of his time developed a pretty good timekeeper. The pendulum lived up to its reputation for steadiness and went back and forth with monotonous regularity, allowing the gears to turn just one notch per pendulum swing. And the gears in turn, propelled the hands around the face of the clock.

By using tiny jewels for bearings to cut down friction and by hand-machining parts, clock and watch makers achieved greater and greater accuracy until the Eigh-

Robert Froman is a free-lance writer who has contributed to many popular national magazines.

teenth Century when an English clockmaker named John Harrison copped a prize of £20,000 with a chronometer that varied only two-fifths of a second per day.

But the costly jewels and skilled handwork necessary made such a clock a thing for the wealthy only, and there was a growing demand for a cheap timepiece that anybody could afford.

By 1807 one Connecticut Yankee was selling uncased clocks with wooden movements for as little as four dollars. Later he and his competitors switched to metal.

But without expensive bearings, the popular-priced watch suffered from a great deal of friction in the constantly turning metal parts. It took a huge mainspring to overcome the friction, and in 1880 one fat $4 "turnip" had a mainspring almost nine feet long.

IT WAS ABOUT 1890 when a super-salesman named Robert Ingersoll learned that new steels could give much more power to a smaller spring. For the first time a small cheap watch became possible. Ingersoll promptly talked one of the older clock companies into risking everything on the development and mass sale of his dollar watch.

It was a happy investment. The venture was an unqualified success, and clock and watch companies the country over jumped on the bandwagon.

Today one of the most successful makers of the dollar (literally, $1.69 and up) watch is the 100-year-old E. Ingraham Company of Bristol, Connecticut. Edward and Dudley Ingraham who run the company say that they never cease to marvel at the price of their watches.

"Between 1914 and 1940," says Edward, "the wages we paid tripled. Since 1940 wages and materials costs have more than doubled again, but our pocket watch still costs the consumer less than two dollars."

One reason that this low price is possible is that every year the Ingrahams or their technicians discover a number of ingenious ways to make watch parts a little cheaper, a little faster or a little better. Since 1914 they estimate they have made as many as 3000 improvements in their production methods.

A tour through the plant — where some 2250 men and women turn out over 30,000 watches and clocks per day — is likely to be confusing to a layman, but it does give him an idea of how so much can be sold for so little.

Among their best-developed machines is the one that stamps out the toothed wheels for the trains of gears. Flipping out 5000 steel or brass wheels per hour, it serves as one of the best examples of the difference between producing the dollar and the jewelled watch.

The heart of this machine is the blanking die. In the jewelled watch industry such dies are run of the mill, for delicate hand-machining finishes the wheels they produce to the necessary tolerances. But to make a watch for a dollar you have to eliminate expensive handwork. Consequently the Ingrahams may spend five to ten times as much for dies as the jewelled watch people. For their money they get fine tool steel dies and subdies that turn out gears of fantastic accuracy. A gear popping from one of the dies is perfect to within one ten-thousandth of an inch. To show how good the steel is, a die will shape 25,000 steel or 100,00 brass parts before it has to be resharpened.

In another part of the plant long banks of screw machines chatter away so automatically — forming 2.5 billion tiny steel, brass, copper and aluminum parts every day — that one man can operate a number of them.

Unless you happen to be a jeweler or a Swiss emigre you can tour almost the entire plant and find very little that looks as if it has any connection with a watch. Here and there a few parts are fitted together so that they resemble nothing in particular and are moved on until finally a jumble of miniature sub-assemblies and individual pieces are placed in front of a girl sitting at a table. Then you behold a miracle.

In one minute flat her nimble fingers flip odds and ends together, fly here and there, adjust a few screws — and Presto! There is the watch, already ticking and keeping time. Each assembly worker can make the old-time, five-shows-a-day vaudevillian look dull by repeating this performance 450 times daily.

A letter from a man in Toronto, Ontario, gives proof that these watches can go through incredible ordeals and still come out ticking.

"Two years ago," he wrote, "I bought one of your wrist watches. I'm a truck driver, and I wore the watch for eighteen months, driving 360 miles a day over roads that couldn't do any watch any good with the pounding and shaking they gave it.

"Six months ago my truck caught fire and I was badly burned. I was wearing your watch at the time. It was burned black, the strap was reduced to ashes and the glass was melted. But the watch didn't even stop running. I had it polished and a new glass put in and am still using it. It keeps perfect time."

The Ingrahams caution other customers not to expect quite as much from their products, but they like to point out that there was nothing special about this watch. It was just another bargain. ■

—Pho

ELECTRIC DETECTORS are used to locate flaws in protective coating. It's an extra precaution against seepage and corrosion.

Pipelines: Am

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Such quirks are unlikely today
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PIPELINERS LAY A LINE, big enough to crawl through, across a thousand miles of country in a few months. Starting rough with ditchers and bulldozers, they end gently, wrapping and coating the steel tubing to protect it against water and corrosion. After the pipe is laid, the ground is leveled, fences are replaced, and things are left as they were before digging began.

ca's Underground Arteries

by Harold Videlock

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out in 1900 between the central Pennsylvania oil fields and Pittsburgh.

Today, pipelines transport 13 percent of the total of *all* domestic freight traffic, although pipelines — unlike railroads, barges and trucks — carry only a few products.

There are now 400,000 miles of trunk and gathering lines throughout this country and Canada; these lines run through Southern rice farms, through the

OTHER OILMEN, far from ditchers and wrapping machines, perform vital operation. Engineers (left) lay pipes on paper for tomorrow's oil. They plan new large-diameter lines to move crude oil from fields to refineries. Crude oil pipeline dispatcher (right) does an oilman's job in a highly specialized communications center backstage.

heavily wooded Northern areas, over the sharp contours of mountains and long reaches of Western flatlands.

THE BEST KNOWN use of pipelines, of course, is for transportation of liquid fuels—oil, gasoline, kerosene—and a newer, more abundant fuel—natural gas. There are now 250,000 miles of natural gas lines in this country, and eventually, they will reach into even the most remote areas, attracting new industries and revitalizing old ones through cheaper fuel costs.

The demand for natural gas as a household fuel is increasing, too. It's cheaper and cleaner than coal, and much cheaper—for both consumer and distributor—than manufactured gas.

There are about 150,000 miles of oil pipelines throughout the United States. In the transportation of oil, pipelines have the advantage over all other carriers.

Railroads, for example, must supply specially built cars to move oil, and once the petroleum is delivered, the car must make an expensive return trip to the oil field or refinery *without cargo.*

This also applies to oil barges; like railroad tank cars, they are specially built carriers. Pipelines — classified as "pushers" — require no wasteful return trip to do their work. Last year, these

lines carried about 2.5 billion barrels of oil.

In the early days of the oil industry, one dollar could move one barrel of oil only six miles. With improved methods of pumping and pipe construction, one dollar today can move one barrel of oil 3,000 miles.

And this is one of the reasons why today's high octane, anti-knock gasoline costs only a little more than the inferior gasoline of many years ago. Cheaper transportation has helped to keep prices down despite tremendous improvements in the quality of the product.

New methods of pipe construction and maintenance are always being sought to keep operating costs at a minimum. Here's an example. Only ten years ago, if a gang of men laying a pipe wanted to bend it to fit the contour of the land, they'd have to carry the pipe — sometimes large enough for a man to crawl through — to the nearest tree and sweat and strain until they got the proper degree of bend.

Today, there is a machine that bends pipe, and saves days of back-breaking work.

Most of the pipes in use today are made of steel, and they require an expensive, protective coat-

TEAMWORK IS IMPORTANT. Engineers plan miles of pipe networks — some parallel, others interlaced — so that refiners can easily trace any pipe they want, like man who moves with confidence among maze which carries oil to refinery pump station.

PATROL PILOT scans area below for signs of trouble. From 150-foot altitude, he easily spots stains of escaping oil, gullies washed around pipes, even rustlers. Oilman on ground runs a pump station that pushes oil toward refineries.

ing against corrosion. Engineers are experimenting with aluminum as a substitute for steel; because it is non-corrosive and therefore cheaper, aluminum will probably be used in many of the pipelines of the future.

TO MAINTAIN a constant flow in a pipeline, efficient cleaning methods must be employed. Crude oil leaves a residue which can clog the pipe and cut down the flow by as much as 40 percent. A special tool, known as a scraper, travels with the oil flow from one pumping station to the next, cleaning out the pipe walls along the way.

Maintenance problems are many but not insurmountable. Texas Eastern Transmission Company, which controls 2,906 miles of natural gas right-of-way, has one maintenance crew stationed every 100 miles. One of the duties of the crews is to rearrange pipes to conform with the changes in land due to erosion and, in some cases, mining. When new highways are constructed, the crews must lower the pipes to allow for a reasonable distance between the roadbed and pipe.

Working with the maintenance crews are air patrols which fly about 150 feet above ground and look for tell-tale signs of repair needs. If the pilots spot oil stains, indicating leaks, or any unusual gullies, radio contact is made with the nearest repair division.

GRADUALLY, methods are being perfected to turn pipelines to the transportation of solid products.

The inspiration for this idea might have come from American folklore about the fabulous Paul Bunyan. According to one story, Paul got tired — or was it bored? — of walking his cattle to market; so he built a pipeline so large that it could accommodate an entire herd. Then all he had to do was drive the cattle into the pipe, and they got to the proper destination by themselves. Paul Bunyan, of course, could do anything.

At any rate, coal is now one of the solid products being carried by pipe. In the struggle to keep costs down — and thus compete with oil and gas, which are rapidly cornering the fuel market — the coal industry might find the pipeline a saving grace.

An experiment being carried out by the Pittsburgh Consolidated Coal Company holds the happy promise of lopping off almost a dollar a ton in transportation costs of coal. This saving would naturally be passed on to the consumer.

The company is testing a three-mile, twelve-inch pipeline which can carry 270,000 tons of solid fuel in a month — equivalent to the amount carried by 450 coal cars.

First, the coal is cut to size to eliminate friction. Then water is pumped through the line, forming a flowing mixture with the coal.

After the coal reaches its destination, special equipment removes the water, which is reused —another saving.

There are all kinds of possibilities for the future of pipeline transportation.

Goods in small packages — in waterproof containers — could be sent directly from manufacturer to wholesalers in large cities. Canned goods, clothing, pots and pans could go quickly and easily from factory to market in the same way the Pittsburgh Coal Company is sending coal.

Ores — such as copper, for instance — could be moved by pipelines. The saving to mining companies would permit the mining of low-grade ores now not worth the trouble because of high transportation costs.

Grains could be blown by air pressure from granary to mill by means of pipes and large wind machines.

We might even see the day when human beings will travel from coast to coast at high speed and low fares — by pipelines, a sort of super-subway system. Don't be skeptical. With today's knowledge of vacuums, air pressures and pumping methods, it's possible! ■

THE INDIAN TODAY

SURVIVAL OR REVIVAL?

"Green Corn Ceremony" by Awa Tsireh
Courtesy Museum of Modern Art

by Oliver La Farge

FEDERAL LAW recognizes as "Indians and Natives of Alaska" some 450,000 citizens, members of over two hundred tribes, groups or bands, and having mother-tongues belonging to five unrelated linguistic stocks. From these we may exclude at least 50,000 persons who are Indians only in a technical legal sense. They retain their status as enrolled members of tribes partly out of sentiment, occasionally for political advantage, and mainly because the status carries with it valuable property rights.

We can say fairly safely that, in the main, primitive Indian cultures were cooperative and non-competitive within the group. Dislike of individual competition continues to the extent that it has been found that the children of many tribes are discouraged from scholarship if they are publicly ranked according to their grades, praised in public for excelling over others, or otherwise set above their fellows.

The spirit of cooperation must have derived in part from requirements for dealing with environ-

Oliver La Farge, Pulitzer Prize novelist, is President of the Association on American Indian Affairs.

ment. The economy was based upon access to unlimited natural resources; there was plenty of game for the hunters, more fertile soil for farmers than they could use. Nonetheless, with primitive equipment, they exploited their resources more effectively by action in common, although some hunting tribes, as in parts of eastern Canada, were highly individualistic. Security for the unfortunate, the crippled and the aged was usually ensured by patterns of generosity and sharing, which in some cases were highly formalized.

For whatever reasons, we find at the core of most of the Indian cultures an economy based upon natural abundance, exploited through cooperation and sharing, to which in turn the spirit of non-competition (we might almost say anti-competition) has become inextricably bound.

The white man brought a culture which smashed head-on into this complex. Our culture, as we all know, rewards individualistic competition and the amassing of personal wealth. Regardless of culture, we put a rapid end to the availability of unlimited natural resources, leaving the Indians crowded on the relatively small areas we call reservations. Hunting economies quickly came to an end. Overcrowding and the introduction of our destructive methods of exploiting the land have resulted in a decreasing productivity of what the Indians were allowed to retain, although this tendency has now been checked in part by modern conservation practices.

The white men thought that they knew what was best for the Indians. The literature for a hundred and fifty years is full of statements of the necessity of teaching them the pride of individual possession, breaking up their habits of giving and sharing, and teaching them to be competitive. Very little has been accomplished along these lines. Until within the last two or three years, the heavy emphasis in education for Indians was on training them to live upon the land.

Federal policy, educational emphasis, love of home, family and tribe and unfortunate experiences in the outside world, all operated to hold the Indians within their reservations. The policy was based in part upon the rapid decrease in the Indian population and the assumption that this decrease would continue to extinction. As the numbers grew smaller and smaller, the survivors could get by nicely on rela-

tively modest areas of land. In the present century the trend reversed itself and today the Indians have the highest rate of increase of any racial group in the United States. The fullest and most efficient use of their resources would probably not furnish a tolerable subsistence for more than three-quarters of the present population.

The new situation of an increasing population with an inadequate land base has been apparent for more than twenty years, but only very recently has federal policy in the inseparable fields of education and economic advancement recognized it. The Indians themselves have frequently been well ahead of their government.

EDUCATION is vital to the Indians' future, since for mere survival they must be enabled to enter into all the manifold gainful occupations open to the rest of the population, whether their actual place of business be within their own property or in the non-Indian communities. A fair number of Indians are educated in mission schools, but the greater part go either to schools maintained by the Bureau of Indian Affairs, or to state public schools under contract to it. Shocking to relate, nearly 20,000 Indian children today can get no schooling at all. These are mostly Navajos and Papagos. Their predicament is the result of special circumstances, the blame for which may be fairly evenly divided among the federal government, the states in which they reside and the Indians themselves. Among all tribes, the number of high school graduates is below average and college graduates are the all-too-rare exception.

Until the nineteen-thirties, the United States Bureau of Indian Affairs was frankly paternalistic. Tribal governments existed only at the pleasure of the Secretary of the Interior, who allowed them little authority. Tribal funds were expended only by act of Congress and often for purposes to which the Indians objected strongly. Individual Indian monies were held by the government and doled out. If an Indian wanted to buy a pair of shoes, it was often up to a minor official to decide whether he should have them. There was constant interference in what we consider private life, as when Indians were forbidden to hold ceremonies on weekdays when they ought to be working, or when one Navajo superintendent refused to allow any man under his jurisdiction to buy a wagon unless he cropped his hair.

Under Commissioner of Indian Affairs John Collier, a strongly anti-paternalistic policy was adopted. One of his first achievements was the passage of the Act of June 18, 1934, the "Indian Reorganization Act," which gave most tribes

the right to set up their own governments, and vested them with real authority. Although the dilemma of an expanding population was not fully faced, Indians were given encouragement such as they had never had before to advance themselves, and there was an increase of Indians in skilled trades and professions. Control of Indians' individual funds was terminated by the present commissioner, Dillon S. Myer, although in other matters he seems to be, perhaps unconsciously, inclined towards paternalism. So far, Congress has relaxed its absolute control of tribal funds in only a few special cases.

Regardless of policy at the top, the majority of Indian Service employees tend to be paternalistic. Old habits die hard. There is a well-meaning inclination to hold Indians back, or to do for them what they should be doing for themselves, for fear that they will do themselves an injury. Attempts at archaic interventions in private life still occur, as when, a few months ago, the superintendent of the Blackfeet ordered that all gambling should stop at 6:00 p.m. because the old people, who while away their time at gambling games as ours do at bridge or canasta, were not getting enough sleep!

The Indians themselves, after generations of being taken care of, tend to turn to the Indian Service for much that they ought to handle themselves. They have a way of almost forcing paternalism on the administrator. They expect service, make an outcry when they don't get it, take it for granted when they do, and in either case grumble at the Indian Service and use it for a scapegoat. Indian complaints against their administrators are a fascinating mixture of the legitimate and the frivolous.

This never was true of all Indians, and the opposite trend is growing rapidly — toward desiring responsibility and authority, freedom to shift for themselves, and to make their own mistakes. Increasingly they realize that no amount of instruction can replace experience, and that the price of experience is some nasty falls.

What we have is an under-educated people, still imbued with a culture not adapted to successful, *individual* competition in our society, partially rejected by that society when they try to enter it, and debilitated by paternalism. Increasing in numbers, the factors listed tie them to their land base. For a few tribes that base is adequate or more than adequate, for most it is already inadequate, and it will be so for all in time. The result is poverty, a psychology of frustration, and rural slums in some of the most gorgeous settings in America.

There are many exceptions to

this generalization, and it must be borne in mind that in the past thirty years, thanks largely to the Indian Bureau, Indians have made progress in competence and understanding of our world. Perhaps I can illustrate the range of variation by describing the present situation of a few neighboring groups; I choose my examples from the Southwest, not because they are necessarily the best, but because I know them personally.

THERE are now 3800 Apaches on the San Carlos Reservation in Arizona. They are descendants of several independent bands, broken in war by the US Army between 1866 and 1880. They used to live by hunting, raiding, and gathering wild plants; their material culture was primitive; and they knew almost nothing of agriculture. On their reservation is a very small area of farming land, but most of the rest is excellent, dry country cattle range. Originally they were held much as prisoners of war, disarmed, under guard, maintained by rations. Later their range was leased to various cattle companies, and the lease payments were enough to keep them alive in idleness. A few Apaches scratched at the farming lands. A few got jobs as cowpunchers. The children were put in school, often by brute force. Thirty years ago most Apaches under middle age had a grammar school education. They lived in idleness, boredom, poverty, and frustration. Their lot was typical of that of the great fighting tribes throughout the West.

A few ran some low-grade cattle in the poorest part of the range, in the western, lowest section. The idlers were not content. The cattle business interested them; they wanted to get into it, but they did not know how.

An old-line, paternalistic superintendent, James B. Kitch, showed them the way. He did not push them into cattle ranching; he helped them get into the business they wanted. He encouraged them to form cooperatives along the lines of the old bands, and to set up a Business Committee to unite the cooperatives. He worked *with*, not *for*, his Indians. He persuaded them to levy a tax on cattle-owners for the benefit of the tribe as a whole, and set this up in such a way that the income did not pass into the US Treasury but remained in the hands of the tribe. Slowly, under his guidance, the Apaches improved their cattle and expanded their operation. One by one they closed out the leases. By agreement, they limited the number of cattle any individual could have, and held the total down to conservation limits. Today they raise their own registered bulls, run 28,000 head of good breeding stock, and are one of the impor-

tant cattle corporations of the West. The cattlemen pay about $400,000 a year to the tribe, while the cooperatives spend another $100,000 a year on improving and maintaining their operations.

The cattle business supports half the tribe in comfort. The other half, with active assistance from their superintendents, has moved into the local agricultural and mining labor markets. They are desired as workmen. Wages have rounded out the economy, although the wage-worker does not do as well as the cattle man.

The Business Committee has become the Tribal Council. With economic power it has acquired real authority. As a large wholesale buyer, the tribe is respected by the neighboring business communities. Perhaps the most serious problem confronting the San Carlos Apaches at present is higher education. Almost every adult today has the equivalent of a partial high school education. They want to persuade their young people to continue through college; if a considerable number will do that, they will become virtually independent of the white man's help.

This success story was made possible by a superintendent's exploitation of the habits of cooperation and non-competition that hold back the individual Indian confronting our society, but, as this example shows, make the group an effective competitor.

—Collection Mrs. Walter Pullman

"NAVAHO WEAVER": painting by Harrison Begay portrays a time-honored Indian craft.

THE NAVAJOS, a branch of the Apaches, occupy portions of northern Arizona and New Mexico. Their population is estimated at over 70,000. Perhaps a third of that number can make a bare living in their desert country. Less than half of them speak English. Of dire necessity, they have turned to labor off the reservation, where they find employment of the lowest order, often accompanied by wretched living conditions. Their tribal council is strong; they are making every possible effort to help themselves, but they cannot escape from their circle of poverty and ignorance without sub-

stantial and long-continued help from the nation that conquered them. Neither they nor any other tribe can escape from the mere production of raw materials into secondary occupations unless they can obtain capital, as well as education in the broadest sense. A well-conceived, ten-year rehabilitation program has been authorized by Congress, but its execution depends upon Congress's annual appropriations, which are unpredictable. Meantime, the entry into migratory labor of thousands of dark-skinned, naive illiterates with very low living standards holds down standards for all such labor.

The Navajos are an extreme example of conditions to be found over and again among the Indians. Other tribes may not be quite as badly off, but they lack the numbers, the national fame, and the spectacular situations with which to influence the public and hence Congress. The Indian Bureau approach has been principally social and educational; its economic programs have been piecemeal and tentative. Above all, we encounter the lack of capital at every turn. Private investment in Indian reservations has been limited almost entirely to the extraction of raw materials.

The San Carlos Apaches are an asset to their larger community, as corporate and individual buyers and as a source of labor. But tribes such as the Navajos drain our economy as a whole, and will continue to do so as long as we are eternally carrying them along the narrow edge of destitution. Sickness, abandoned children, unemployment, helpless old people pile up on the public purse.

THERE is no lack of ability in the Indians themselves. Psychological tests consistently indicate high intelligence. Indian women make singularly good nurses. Men and women do well at any work requiring manual dexterity; where they have had a chance to prove themselves, they are sought after as mechanics. They have proven beyond any possible doubt that they make splendid soldiers and sailors. Individuals born and reared on the reservations are today successful doctors, lawyers, administrators, and scientists.

The potential is there, although so much is now going to waste. The Indians need the means to build themselves up in health, education, and economy; in return for which thousands of competent and vigorous people will make their contribution to our national well-being. The alternative is the one from which the Navajos are struggling so hard to escape — the seepage into the bottom level of our population of thousands of demoralized misfits. ■

by Frederick Lewis Allen

WE CUSTOMARILY SAY that our economic system is capitalistic; yet the word connoted half a century ago, and connotes today in Europe, a way of doing business quite different from the current American way. Or the contrasting terms "free enterprise" and "socialism," each of which carries an overload of traditional meaning which is not very helpful in defining what we may intend to convey about the exact state of economic and political affairs today.

And take the corporation. Most American business is done by corporations, ranging in size from virtually one-man affairs to massive enterprises like General Motors, which today spends more money annually than the United States Government used to spend in the nineteen-twenties (even including the expenses of the Army and Navy). Nearly half of all gainfully employed Americans are on the payroll of a corporation; if we exclude farmers and other self-employed people from our reckoning, the proportion is much larger. Yet the very nature of American corporations, especially the big ones, has so changed since the days when most of us first heard the term — or since the textbooks were written that first introduced us to the corporate concept — that we have difficulty in grasping the reality of what we actually see when we look at them.

The change has been very important to all of us. Let us there-

Frederick Lewis Allen is editor-in-chief of Harper's Magazine. This article is excerpted from his latest book, "The Big Change," Harper & Bros., N. Y. Copyright 1952 by Frederick Lewis Allen.

fore try to see the corporate institution of today with fresh eyes.

To begin with some generally familiar facts: A corporation is traditionally supposed to be controlled by the people who put up the money to launch and develop it; they take shares of stock in it, and as stockholders they elect directors to look after the running of it for them, and the directors select and supervise the managers who do the actual running. Thus, in theory, and in the letter of the law, the stockholders are the ultimate authority. This is still true in most young companies, which need capital to get going, and in many small ones, anyhow. But in most successful American concerns which have grown to maturity, and especially in the very big ones which between them do a very large proportion of American business, the stockholders are no longer in control in any real sense: they are subordinate in authority and importance to the management.

It is the management which determines policies and makes decisions. Important decisions must be ratified by the directors, to be sure; many if not most directors feel a heavy sense of responsibility, and there is some evidence that this sense of responsibility has been growing in recent years; yet their contribution to the actual running of the corporation tends to be somewhat negative, if only because few of them are living from day to day with the problems laid before them. As for the stockholders, the law still says that they must ratify some sorts of major decisions, so a legal rigmarole has to be gone through by which the stockholders will say OK at their annual meeting. But this annual meeting is ordinarily a farce.

The officers of the company, exuding a synthetic affability, may be faced with a few embarrassing questions and a few adverse speeches, but the great majority of stockholders have sent in proxies favorable to the management, and the protesters are therefore annihilated by a gentleman who rises to cast several million votes against them.

Suppose a stockholder doesn't like the way the corporation is being run? Only if he is eccentric, or a special sort of crusader, or a politician (union or otherwise) trying to make a stir, does he try to oppose the management of a really big company. What he does, instead, is to sell his stock and get out.

The management regards him with far more respect than it regarded its minority stockholders at the turn of the century, when it might tell them nothing at all about the company's progress, or at the most produce for them a batch of bloodless statistics. Now he is given full and lively reports, full of photographs of the company's more picturesque operations, and graphs in which the money spent in this and that way is represented by pretty piles of coins.

The stockholder is viewed very much as the customer is viewed: not as an owner but as someone who had better be wooed lest he take his patronage elsewhere.

With potential opposition melting away through the sales exit, the management is very much in the saddle — and in most of these larger companies it is virtually self-perpetuating. How else could things be run in, let us say, the American Telephone Company, which has over a million shareholders, no one of whom owns more than one-tenth of one percent of the stock?

Looking at this segment of American business, we would almost find it appropriate to call our present economic system "managementism" instead of "capitalism."

For to a very large extent successful corporations today are self-financing. They roll their own capital, by paying out only part of their earnings in dividends and using the rest to buy new machinery, build new plants, acquire new subsidiaries. This method of superseding the banker was rare among big corporations at the turn of the century, but it became very popular in the nineteen-twenties, and it is standard among them today. The head of a large and successful corporation with ample funds is therefore likely to regard Wall Street somewhat as he does his doctor: better be polite to him because the awful day might come when he could give one orders, and anyhow his occasional services and check-ups are useful; but in the meantime the doctor is not one's master. Similarly, nobody in Wall Street is the successful corporation head's master, Mr. Vishinsky and his like to the contrary notwithstanding.

In this as in many other matters, the Soviet propagandists — and many foreign observers of America who are far less unsympathetic — not only distort the truth about America but distort a truth more than twenty years out of date.

Is the big and successful corporation its own master, then? Not quite.

To begin with, it is severely circumscribed by the government. As Professor Sumner H. Slichter has said, one of the basic changes which have taken place in America

during the past fifty years is "the transformation of the economy from one of free enterprise to one of government guided enterprise. . . . The new economy," says Dr. Slichter, "operates on the principle that fundamental decisions on who has what incomes, what is produced, and at what prices it is sold are determined by public policies." The government interferes with the course of prices by putting a floor under some, a ceiling over others; it regulates in numerous ways how goods may be advertised and sold, what businesses a corporation may be allowed to buy into, and how employees may be paid; in some states with Fair Employment laws it even has a say about who may be hired.

MANAGEMENT is severely limited, too, by the power of labor unions. This is almost wholly a negative power: the union can tie the corporation up, but cannot run it, or even administer the provisions of a contract arrived at between it and the company: that it has to leave to the management. But the obstructive power of union leaders may be very great; the people who say that the man who in recent years has come closest to Pierpont Morgan in the exercise of personal power in the national economy is John L. Lewis are not very far off the beam. In unionized plants a series of contracts have served, in effect, to enact what has been well described by Peter F. Drucker as "the new common law of the industrial plant and office" as to hiring and firing, seniority rights, the handling of grievances, overtime work, vacations, and a lot of other things. In many cases this body of common law may be beneficial in the long run to the corporation as well as to its employees, but it certainly reduces the independence of the management.

Finally, the management must always steer its course with an eye to how its actions will look, not only to its employees, its stockholders, its customers, and the government, but also to the general public. The heads of little businesses may engage in deals which will not stand public scrutiny, and sometimes get away with grand larceny; the heads of big businesses are aware that this is exceedingly risky. For they know they are under close critical observation. Detailed reports to the Securities and Exchange Commission, detailed reports to the tax gatherers, and the possibility at any moment of being investigated by the Federal Trade Commission or by a congressional committee, leave them with about as much sense of privacy as a goldfish A goldfish has got to be good. These men have acquired, too, for the

most part, a healthy respect for the commercial value of general popularity, and feel that it is incumbent upon them to win friends and influence people. And this obligation, too, diminishes their opportunities to do as they personally please.

But that isn't the quarter of it.

For the very nature of corporate business has been undergoing a change.

To pick out one word that comes as near as any other to describing the change, one might say that business is becoming professionalized, in the sense that more and more men in business are engaged in doing the sort of thing that we associate with the professional man (lawyer, doctor, engineer, professor) and doing it more and more in a spirit resembling that of the professional man.

When at the end of the first decade of this century the president of Harvard University, composing the citation for the degree given by the new Harvard Graduate School of Business Administration, called business "the oldest of the arts and youngest of the professions," there was considerable levity among the hard-shelled — and not simply because the language he used reminded people of the identity of the oldest of the professions. They thought the whole idea preposterous. Business, a profession! What an innocent notion! Business was a rough-and-tumble battle between men whose first concern was to look out for number one, and the very idea of professors being able to prepare men for it was nonsense. As a matter of fact, many a tough-fibered tycoon of those days was dubious even about employing college graduates, whom he regarded as toplofty, impractical fellows who had to unlearn a lot before they were fit for the business arena. One rough measure of the change that has taken place since then is to be found in the fact that this very professional school of business at Harvard has won widespread respect, and financial backing as well, from among big corporations; and that many of these corporations, at their own expense, send some of their most promising officials, at the age of forty or thereabouts, to fit themselves for enlarged responsibilities by taking the school's thirteen-week course in Advanced Management. This does not mean that a great university has departed from its scholarly traditions to shelter a

trade school; it means rather that an important part of American business, as now operated, requires of its leading men what are essentially professional skills and abilities.

WHAT of the attitude of such new-style managers as these toward the general public interest? Here one should walk very warily indeed, recognizing that speeches by a corporation head may be window-dressing arranged by a public-relations department and that, in general, protestations of virtuous intent cannot always be taken at face value. Nevertheless something seems to have happened.

The Great Depression had much to do with it. The top men of America's big corporations remember the doghouse which they inhabited in those days; and though some of the elder ones are still unreconstructed Washington-haters, and there is hardly a man in authority today who does not on occasion splutter at some of the restrictions — and monumental paper work — imposed upon him by the government, a great many of the younger and more nimble-minded of them have acquired a genuine distaste for the shenanigans of the nineteen-twenties, a firm intention not to butt their heads against the political and social facts of life as their predecessors did, and a hard-learned but unfeigned awareness of the principle that, in the long run, as Peter F. Drucker has put it, "No policy is likely to benefit the business itself unless it also benefits the society." The war had something to do with the change, too, bringing together as it did businessmen, government men, labor leaders, physical scientists, social scientists, and assorted professional men in government undertakings in which they learned to appreciate one another's competence and point of view. I do not mean that our business executives have put on haloes; I prefer the way in which the attitude of these men was described by Ralph Coghlan of the St. Louis *Post Dispatch* at the Corning conference of 1951 — a conference, by the way, which dealt with "Living in Industrial Civilization," and brought together in a two-day powwow businessmen, sociologists and other scholars, journalists, and government officials, and was staged by a business concern, the Corning Glass Company. Said Mr. Coghlan:

"When I was growing up, the word 'soulless' corporation was a very common term . . . Well, in my lifetime I have seen a remarkable change in this. I don't know whether it could be said that corporations have obtained souls, but at least they have obtained intelligence." ■

Gallopin' Goldmines

by Wally E. Schulz

ALTHOUGH today's youngsters dream of rocket ships and interplanetary voyages, the old-fashioned merry-go-round hasn't lost its popularity. Bright-colored horses spinning around to the gay calliope music still delight the "space-cadet" set. Far from becoming a lost art, merry-go-round making has turned into a profitable venture for a few imaginative people.

In his little shop in Reedsburg, Wisconsin, Gus Sweeney is found each day busily turning out amusement-park ponies — perhaps designing the very horse that next summer will take you or your youngster for a brief, exciting, circular whirl through space.

There aren't the usual earmarks of a nation-wide business in Sweeney's shop. But the small-town merry-go-round manufacturer ships his little palominos, spotted broncos, perky grays and blacks to the far corners of the United States and Canada. Spirited steeds that fascinate youngsters and grown-ups alike, they are the

products of one man's imagination and just a few men's skill.

"It all began when I inquired about the price of a merry-go-round," says Sweeney. "I wanted to buy one and sell rides to the youngsters that visit the tourist spots of our town. But when I learned that merry-go-rounds begin at the fancy price of $10,000 and climb upwards, I decided to make one myself."

Known by his neighbors for his willingness to tackle anything, Sweeney set to work. Together with his right-hand man, Raymond Cridelich, who helps him in his second-hand store, he spent long winter evenings making plans. Cridelich is one of those all-around mechanics and handymen who have a knack for translating ideas into practical forms -- without the intermediate steps of drafting room and blueprint. The two make quite a team.

"I was lucky," Sweeney explains, "to discover an old wooden merry-

go-round horse in a nearby city. I met a fellow who used to have a merry-go-round, and this one old horse was being booted about his shop, so he gave it to me. I brought it home and took it apart to study its make-up — planning how I could improve it and make a model of my own design.

"After literally getting to know the horse inside out, Ray Cridelich and I went to work making molds for casting the various parts. We didn't know the first thing about the process, so we had a lot of questions to ask and a lot of mistakes to make before things finally worked out."

The first problem they ran across was that of making a heat-resistant sand-and-clay mold into which the metal is poured. Time and again they designed a mold — and time and again high temperatures caused the sand to dissolve and form bubbles in the metal. Eventually, Gus and Ray found themselves on a sand-hunting expedition that took them all over the state before they discovered a variety of sand that neither bubbled nor cracked in molding.

A huge kettle, formerly used for rendering lard, became the melting pot; a segment of an old boiler and some fire-brick became the outside of the furnace; and an old stoker furnished the heat. At a cost of less than $50, Sweeney had set up his "foundry."

But creating a horse of the proper design proved quite a chore, even after the casting problem had been solved. One design after another found its way to the scrap

heap, until Sweeney finally came up with a set of patterns which would fit together to make a sturdy horse. Sweeney and Ray discovered that there was a precise temperature at which the aluminum would flow into the molds; that allowances had to be made for the insides of the molds; and that there was a lot of filing and scraping to be done if the joints were to fit smoothly.

When they got all through, they found out that the horses weighed approximately 165 lbs. — too heavy to be practical. Once again, Sweeney and Ray had to make the sand-and-clay mold and redesign

the patterns — this time using the old Trojan-horse trick and molding the ponies to come out hollow.

In spite of these delays, it was only two months before the first aluminum horse rolled, or rather galloped, out of the molds. It consisted of twenty-one aluminum and six wooden parts — weighing just 95 lbs.—painted in glorious colors which would withstand the scuffings and rough wear of hundreds of would-be bronc-busters.

The details had to be accurate, too. "Above all," Sweeney insists, "we had to have the proper saddles and stirrups to complete our horses. Youngsters nowadays see too many Westerns for the merry-go-round designer's good! We topped things off by giving our bronco a "real" hoss' tail and a pair of warm, friendly eyes.

"Those eyes were heart-breakers, though," complains Sweeney. "Ray and I wanted to have everything come out of our own workshop. But we finally had to buy them ready-made from a glass-eye manufacturer. Just couldn't get them to look natural."

Once Sweeney had completed a "corral" full of horses, the next thing to do was to get them in motion. This job was an easy one. After all, a merry-go-round is nothing but an oversize turntable — a sort of monster phonograph with horses instead of records on it. By salvaging some old washing machines, car cylinder heads, vacuum cleaners and various other

parts found around his second-hand shop, he soon assembled the base of his merry-go-round.

Sweeney confesses that his first job was quite amateurish in make-up. But it served as a "rough" or

pattern for the models to come. Like every other inventor of something new, he had "bugs" to iron out. But the horses soon began looking very spruce indeed — neatly jointed and freshly painted.

When the merry-go-round was finally set up in the backyard and the bright-colored ponies started chasing each other around the spinning turntable, Sweeney was delighted. But he was unprepared for what was to happen. Startled and excited by the familiar merry-go-round music, neighborhood children began racing down the street, practically tumbling into Sweeney's yard. "Gimme a ride, Sweeney! Give us a ride!" they screamed — and they didn't stop screaming until Sweeney had halted the merry-go-round and helped each young Hopalong to

sit "tall in the saddle."

Children weren't the only ones attracted by the carnival music. Grown-ups, too, were seen cutting across the lot to find out what was going on. Soon a crowd of onlookers had congregated in the Sweeney backyard, and the grand launching of the merry-go-round business was under way.

"I never dreamed my merry-go-round would meet with such popularity," says Sweeney excitedly. "Nobody could believe that Ray and I had made it by ourselves, but that didn't stop them from inviting us — and our merry-go-round — to all sorts of occasions. One lady, I remember, insisted that we bring it out to a picnic that her society was holding in the country. So we put the merry-go-round on a truck, carted it out to the grounds and gave rides.

"The whole business was really very profitable," he adds. "On some of my busiest days I made as much as $135. After all, even grandmas

Cashing In

CASHING IN on the craze for "rides" of any sort, a Cuban and a Dutchman recently hired an empty barbershop and set to work on a handmade rocket ship. Now part of a forty-foot arcade of horse, reindeer and steamship rides in a Brooklyn dimestore, the rocket is made of the belly of an airplane, the nose of a Studebaker, and an automobile exhaust pipe—for that "jet" effect. The control board shows a panorama of outer space and the car itself pitches and rolls like a ship in a storm. Billed as a trip to Saturn, Venus and Mars, the electric-powered ride lasts for ninety seconds.

and grandpas like to climb into the saddle of one of my little ponies and ride 'round and 'round like kids. It recalls fond memories to them, I suppose, of when they used to clutch the whole sum of a nickel or a dime and buy a ride on the merry-go-round."

Soon Sweeney found himself with more orders than he could fill to supply other people with horses and merry-go-rounds. Although the first one had been difficult to make, the process soon became routine, and Sweeney was able to supply an entirely new merry-go-round, complete down to the brass rings, for $3000.

Among his first customers for horses without the carousel itself were several local barbers. "They know what a difficult task it is to cut the children's hair," says Sweeney, "and so they figured if they could have horses for kids to sit on, the youngsters would stop fussing about their haircuts, and things would be pleasanter all around. I told the barbers I could fill their orders and paint them according to their tastes. I even mounted them on regular poles traditional of the barber shop chairs, so they can be automatically lowered or raised to suit the child's size."

The horses for the barber shops cost $155 each, but the increase of business in these shops proved they were a wise investment. Advertisements reading, "Kiddies: Ride a hobby horse while we cut your hair," appeared in all the local papers. To the delight of the barbers, the results were soon clear as youngsters all over town gladly sacrificed their cowlicks.

Shoe store owners, too, were seen making trips to the Sweeney "horse store" where they asked to have horses made for them. Since these ponies had to be fashioned somewhat differently from the barber shop "breed," the cost was $200 apiece.

"Children seem to hate the idea

of sitting long enough in a shoe store to be properly fitted with shoes," says Sweeney. "My horses were the answer to the problem. This way the youngsters can ride at a stiff gallop and be highly entertained until the correct shoe size is found. In fact, the store owners now find that the trouble is not in getting the small fry to come in for shoes, but in getting them to leave once they've made their purchases."

Supermarkets, too, have found merry-go-round horses a clever way to keep small-fry from underfoot while their mothers leisurely browse around the canned goods and frozen foods counters. Orders have been coming in so fast that Sweeney has had to take on two extra helpers. About six complete ponies can be turned out in a week in his shop, and they cost about $100 apiece in materials and labor. The labor costs, Sweeney finds, are rather high since the painting must be done by hand and requires a certain amount of artistic skill.

In spite of the cost, however, sales for both merry-go-rounds and individual horses are going up all over the country. And Sweeney, for one, doesn't think that it is a temporary fad. "These ponies," he insists, "will never cease to entertain the children riding them. Merry-go-rounds have been in existence for years, but children return again and again for another ride. There's something about riding a pony (even if it's just a different color) that makes the riding exciting. The possibilities are endless both for businesses and amusement parks.

"Anyhow," says Sweeney, "aside from the profit angle, it's an awful lot of fun making these ponies. I keep remembering my own childhood dreams of riding ponies and playing cowboy. Funny how you can sometimes cash in on dreams, and how a little imagination can help a small businessman corner a market." ■

Coney Island's Formula

WHAT'S THE SUCCESS FORMULA of amusement parks? P. G. Wodehouse once described it.

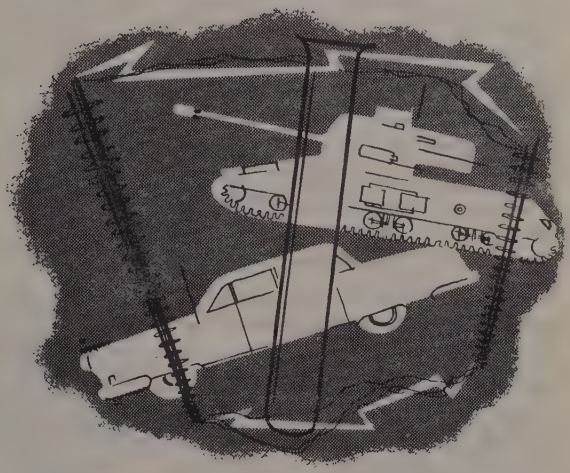
"The principle at the bottom of Coney Island's success is the eminently sound one that what would be brutal assult, if administered gratis, becomes rollicking pleasure when charged for at the rate of 15 cents per assault.

"Suppose one laid hand upon you and put you in a large tub; suppose he then proceeded to send the tub spinning down an incline so arranged that at intervals of a few feet it spun around and violently bumped into something. Next day he would hear from your lawyer. But in Coney Island you jump into the tickler and enjoy it; you have to enjoy it because you paid good money to do so."

— *Wall St. Journal*

Engineering Economics

The science of being practical about marketing new ideas and new products



by William L. Swager

THE RAPID PACE of science and technology has made it difficult for the businessman to interpret for himself the significance of the many developments coming to his attention daily. In recent years, this pace has been astounding.

Prior to World War II, the wonder drugs such as penicillin, aureomycin, streptomycin, and cortisone were unknown. Most housewives are now familiar with nylon, Orlon, Dacron, and Acrilan synthetic fibers, yet most of these have also been developed since World War II. Even the appliances that many people have taken for granted for many years have been and are being further developed to provide more conveniences for the housewife. Even though science fiction on rockets and space travel has caught the imagination of young and old for many years, today the publicity on space-sounding rockets and guided missiles indicates that technology is approaching the solution of problems that were only fiction writers' dreams a few years ago. The rapid advances in nuclear physics which have given us the atomic bomb and the rumored success with the hydrogen bomb comprise further evidence of the pace of technology.

These are the more spectacular developments — a fraction of the developments resulting from the estimated $2.9 billion research ef-

fort in the government, industrial and independent research laboratories of the United States in 1952.

Businessmen need to know what these developments mean in terms of markets, dollars and profits. Research men need to know a bit of economics so that their research results will be practical. Because of these needs, a field of effort has grown which, at Battelle, is called *engineering economics*. Elsewhere it may be known as techno-economic studies or technical and economic surveys. Regardless of where the work is done or what it is called, the studies conducted are aimed at bridging the gap of knowledge between technology and business, finance and economics.

In that sense, engineering economics can be likened to one span of a bridge having its foundation in technology. Workers in engineering economics are well founded in science and engineering with additional training in business and economics. They are attempting to interpret for the businessman the action and reaction of technology and business. The other span of the bridge might be considered business economics, having its foundation in business and finance. At some point the two spans meet. In many cases, investigators in the two fields are working toward the same answers from different points of view.

At Battelle, engineering economics is considered to cover three major fields: research guidance, operations guidance and the guidance of capital. Studies in these fields are made for management. They serve a staff function and provide information in the form of concise reports upon which management can base its decisions.

There is little merit in developing an improved washing machine if the new machine washes only somewhat better and costs twice as much as those now on the market. In many cases this is recognized only as the development reaches completion. Constant thought must be given to economic as well as technical factors so that, as a result of research, the client may be warned against economically unsound attempts at manufacturing and marketing certain products.

Studies in engineering economics are an invaluable tool for the industrial research executive. A research department's success is measured by the number of new products and profits realized by the company through research results. These studies allow the re-

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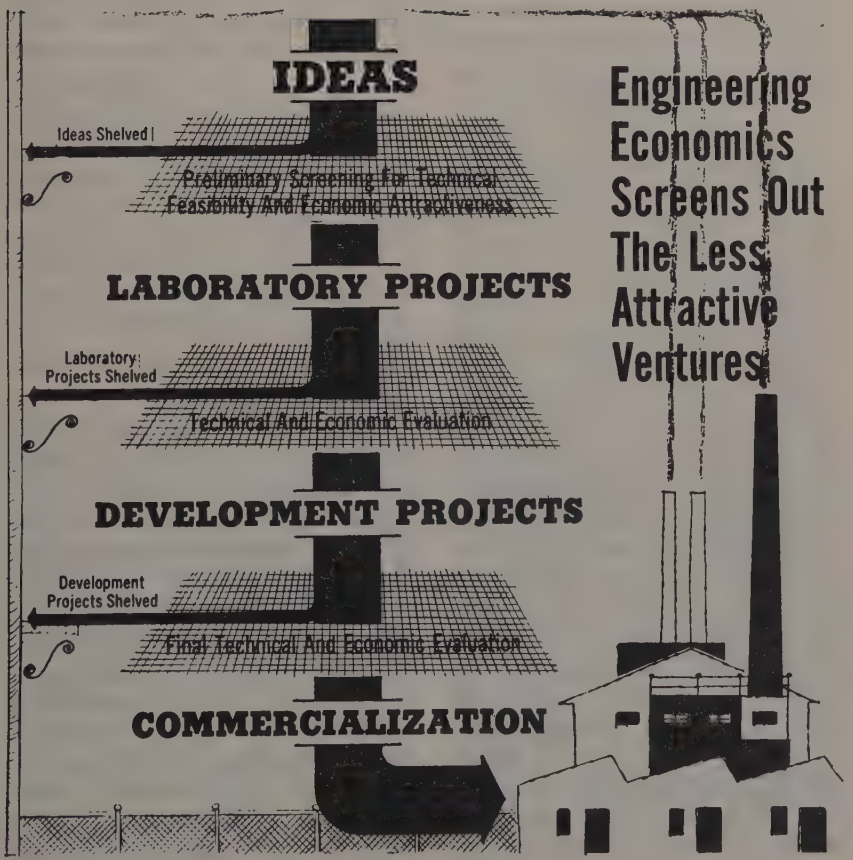
search director at several stages of planning and development to screen out of the many ideas that come to his attention those having a reasonably good chance to become profitable ventures for his company. These studies provide him with estimates of processing costs, information on the availability and cost of raw materials, data on the size and location of markets, and the relative advantages of various plant locations. Using this information, he is in a position to eliminate at early stages the less promising projects, thereby boosting the "batting average" of his department's research efforts, as shown in the accompanying illustration.

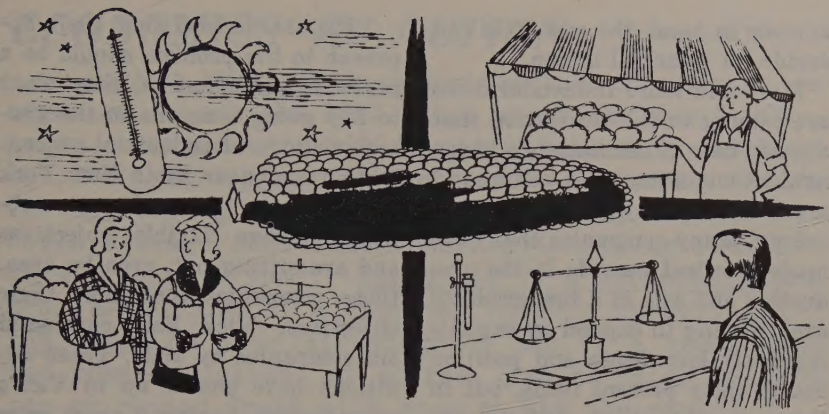


Several years ago, the research department of a large firm asked Battelle to help them on an engineering economic study of titanium. Titanium is a metal, lighter than steel and stronger on the basis of an equivalent weight. Today this metal is finding many applications in the aircraft industry. At the time, however, only a few hundreds of pounds of titanium were being produced — nearly all in small experimental batches. This company had most of the cost data that were needed, but estimates of the potential market were lacking. Particularly important to them were estimates of the market volumes at various price levels. Armed with this kind of information, they could look again at their process and costs to determine whether additional research would be justified.

Even though there were few and inconclusive test data on the characteristics of the alloys based on titanium, Battelle was able to search out the many possible uses for titanium and establish within reasonable limits the markets for this material based on various price levels. In general, it was concluded that if titanium could be sold for $1 a pound, it might compete for certain applications of stainless steel — realizing an annual market of the order of 100,000 tons. If, however, the price were $3 per pound, the annual market might be of the order of 10,000 tons. At a higher price—say $5 a pound—the annual market might be limited to only a few thousands of tons. An all-out war effort could push all these figures considerably higher.

During World War II, scientific methods for analyzing military operations were developed. The techniques used allowed the military to make optimum use of available equipment, weapons and manpower. Since the scientific method was applied to fields outside those conventionally considered as exact sciences, a new term, "operations research," was coined to describe such activities. During the war, the problems were confined to comparisons of military effectiveness and costs of alternative weapon systems.

TODAY, the techniques of operations research are being applied to commercial operations as well. Let us take a simplified example of how operations research can thus be applied. Let us consider the problem of the grocery store owner when he purchases perishable vegetables, say sweet corn, for instance. If he purchases too little, he isn't taking advantage of all of his sales possibilities and, further, he may cause some of his customers to be dissatisfied, forcing them to go elsewhere. On the



other hand, if he purchases too much, his profits may be wiped out by the loss he must take on the amount that spoils.

What the store owner doesn't know is how much sweet corn will be wanted by his customers. The first step is to determine from previous experience the most probable demand. The weather, the day of the week, and other factors may have to be taken into consideration. The next step is to determine the causes of profits and losses. Dissatisfied customers certainly must be considered. Unsold corn is also a loss to be considered. He must buy so that neither of these losses will be prohibitive. It may be that the operations research answer to the grocer's problem is to buy 100 dozen ears of corn with the probability that ninety-five dozen will be sold. If such is the case, the grocer knows that he is buying an amount that gives him a high probability of profits and a low probability of loss.

This is obviously an oversimplified example, the answer to which might have been reached intuitively, particularly if the fluctuations in demand were not great. The usefulness of operations research techniques to complex business problems, however, is apparent if one considers how many business factors are stated in terms of probabilities, and how many business factors are intangible. Operations research provides a method for measuring many of the previously considered intangibles. It provides a means of relating the cause and effect factors so that the business executive can see clearly the inner workings of his business in a way he hadn't considered before. In one sense, operations research can be thought of as a method for diagnosing business operations. With the di-

agnosis in hand, the executive can decide on remedial action.

More and more industrial firms are coming to the realization that a broad base of earnings is a hedge against business cycles and loss of markets caused by changes in technology. Many companies that have made excellent records in the production and sale of a few products are choosing to expand by exploiting their knowledge and position not in their present fields, but in those closely allied. Others are choosing to invest in new plants or going concerns in fields entirely foreign to their previous experience. Because of the confidential nature of studies in the guidance of capital handled at Battelle, it is best to refer to a recent article on how one company is attempting to diversify its activities through the efforts of its own organization.

The Vick Chemical Company, as reported in a recent article in *Business Week*, has had an active program for many years aimed at decreasing its dependence on a single market—cold remedies. Research in pharmaceuticals may find a new method for treating the common cold. When and if that time comes, the Vick Chemical Company plans to be sufficiently diverse in its activities so that the blow would have little effect.

Vick has decided that their approach to the problem should be a regional one. That is, they want to buy going concerns in the general vicinity of industrial concentration and near their New York headquarters. They have established rather flexible objectives and are sifting out, area by area, those companies that meet their objectives. Vick had purchased six companies by 1946. These additions have shown up in Vick's sales figures, having a gross sales volume more than five times their 1935-1939 average.

THIS IS an age of technology. Businessmen are confronted with complex problems, major portions of which deal directly or indirectly with science and technology. Not many years ago a businessman, by rule of thumb, could interpret reasonably well the business implications of the technological problem at hand. But today, with the increasing complexity of technology and the increasing applications of technology in everyday business affairs, businessmen are calling for engineering economic studies by a balanced team of engineers, scientists and engineering economists to provide basic data for sound business decisions. ■

ECONOMICS IN ACTION *(continued)*

Packed like sardines may become an outworn expression, since the 1952 catch was a shrimpy 2,500 tons, compared with 1951's not outstanding catch of 110,000 tons...Breakfast eggs, too, won't be plentiful. The egg-laying population has shrunk by 4 percent, while average individual consumption is up from 397 to 406 eggs a year...Two bites to a strawberry are promised by use of a chemical hormone spray...And the cream on your strawberries may be a reconstituted powder--unless, of course, you're using the frozen or canned fresh milk soon to hit the market....

All the on-the-cuff buying that Mr. and Mrs. America have been doing apparently has the government worried...Right now a record $23 billion of consumer credit is outstanding, 15 percent more than a year ago. The Federal Reserve Bank, from which member banks borrow the money they lend to individuals, has raised its interest rate to 2 percent, thus making member banks less eager to lend out money at low rates...Still, consumer credit is only one-tenth of personal expendable income, after taxes--an inflationary but not a dangerous amount....

The first big price-breaks since the Korean war have come about in the past few months. Most of the drops, however, have occurred only in wholesale prices, causing the farmer to fret about the future...Corn is down 20 percent a bushel, while wool prices have collapsed to 50 percent below last year's peak...The cost-of-living, on the other hand, declined only a fraction of a percent in December, and many of Eisenhower's advisers are warning him to install stand-by controls after all controls expire on April 30....

ECONOMICS IN ACTION

Although 88 percent of the nation's farms are electrified, only a bare 38 percent have telephone service--a smaller percentage than in 1920...Farms in operation may outnumber farm workers one of these days. Reason: anyone who earns most of his income off the farm is counted as a non-farm laborer by the Bureau of the Census, even though he hoes potatoes, feeds chickens and milks the cows every spare moment he has...Cheapest farm laborer is the "wetback"--one of hundreds of thousands of Mexicans who illegally cross the Rio Grande each year to work for as little as 20¢ an hour on American farms....

Thanks to the Point Four program, by which Americans share Yankee know-how with technically underdeveloped countries, thirty-five nations are on the road to increased prosperity...Especially dramatic are the results in ending malaria in Peru, and the salvaging of 15,000 acres of land in Egypt to feed the starving Bedouin population. Not a give-away program, Point Four technicians simply "set it up, show 'em how, and go home". Main criticism is that not enough energy has been devoted to gearing Point Four to private investment....

Department of Better Mousetraps: a mechanical flapjack flipper to keep those buckwheat cakes on the griddle and off the floor...fishskin shoes, said to be longer lasting and more flexible than leather, and not bad-looking either...for the feverish file-clerk, an electronic sorter that alphabetizes 800 cards a minute...more potent pickles, flavored with bourbon, cognac or martini...and still in the patent stage, an "audible bicycle" that can play anything from a political speech to "Look out--I'm learning!"